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10/693,484	10/23/2003	Mac Stevens	P156C1-US	2568

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EXAMINER	
GEBRESILASSIE, KIBROM K	

ART UNIT	PAPER NUMBER
2128	

NOTIFICATION DATE	DELIVERY MODE
03/06/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/693,484	STEVENS ET AL.	
	Examiner	Art Unit	
	KIBROM K. GEBRESILASSIE	2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 January 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,3,6-11,18,21,44,48 and 55-58* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2,3,6-11,18,21,44,48 and 55-58* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 01/05/2009 has been entered.

2. Claims 2, 3, 6-11, 18, 21, 44, 48, and 55-58 are presented for examination.

Response to Arguments

3. Applicants are thanked for amendments/Remarks.

4. Applicant's argument relating to PRIORITY (Remarks, page 6) is persuasive and therefore the priority is corrected as seen in Priority section below.

5. Double patenting rejection is still **maintained** until the Terminal Disclaimer is provided. Further, applicants indicated, "applicants respectfully asserted, however, that the PTO's statement that the claims of the other patent anticipate the claims of the instant application is in error" (Remarks, page 6). However, applicants have not specified why the statement is in error and therefore the issue will not further address.

6. Applicant's amendment/argument relating to 101 rejection is persuasive and therefore the rejection is **withdrawn.**

7. Applicant's arguments relating to art rejection with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Priority

8. Acknowledgment is made of applicant's claim for benefit of the filing date of a continuation of the prior application Serial No. 09/938, 789, filed August 21, 2001.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Rejection under 35 USC 112, 2nd paragraph, No Disclosure or Insufficient Disclosure of the Structure, Material, or Acts for Performing the Function Recited in a Claim Limitation Invoking 35 USC 112, Sixth Paragraph.

Regarding claims 2, 3, 6-11, 18, 21, 44, 48, and 55-58, claim elements, for example, "means for receiving, means for creating, means for adjusting, means for linking, means for applying, means for moving" are means (or step) plus function limitations that invoke 35 USC 112, sixth paragraph. However, the written description fails to disclose the corresponding structure, material or acts for the claimed function.

Applicant is required to:

(a) Amend the claims so that the claim limitation will no longer be a means (or step) plus function limitation under 35 USC 112, sixth paragraph; or

(b) Amend the written description of the specification such that it expressly recites what structure, material, or acts perform the claimed function **without introducing any new matter** (35 USC 132(a)).

If applicant is of the opinion that the written description of the specification already implicitly or inherently discloses the corresponding structure, material, or acts so

that one of ordinary skill in the art would recognize what structure, material, or acts perform the claimed function, applicant is required to clarify the record by either:

(a) Amending the written description of the specification such that if expressly recites the corresponding structure, material, or acts for performing the claimed function and clearly links or associate the structure, material, or acts to the claimed invention, without introducing any new matter (35 U.S.C. 132(a)); or

(b) Stating on the record what the corresponding structure, material, or acts, which are implicitly or inherently set forth in the written description of the specification, perform the claimed function, For more information, see 37 CFR 1.75(d) and MPEP 2181 and 608.01(o).

11. Claims 2, 3, 6-11, 18, 21, 44, 48, and 55-58 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. For example, the disclosure fails to disclose the corresponding structure, material, or acts for performing the function recited in claims limitation invoking 35 USC 112, Sixth Paragraph, and therefore the claims are vague and indefinite.

Double Patenting

12. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims

are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 2, and 18 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 2, and 12 of U.S. Patent No. 6,678,876. Although the conflicting claims are not identical, they are not patentably distinct from each other because all claims are directed to creating an initial array of nodes within a routing space, adjusting initial array of nodes, and selecting a path through adjusted array of nodes.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. Claims 2, 3, 6-11, 18, 21, 44, 48, and 55-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Publication No. 2001/0038612 issued to Vaughn et al in view of US Patent No. 6, 385, 758 issued to Kikuchi et al.

15. As per Claim 1, Canceled.

16. As per claim 2, Vaughn et al discloses an apparatus comprising computer hardware for use in generating paths for electrically conductive traces within a routing space comprising:

means for receiving computer readable information representing a proposed physical layout of a routing space of an electronics system including locations of a first electronic component, a second electronic component, and obstacles within said

proposed physical layout (such as… *input 102 represents the data entered by a user describing the circuit to be routed. This data… includes a placement diagram,…a placement diagram generally consists of a drawing that shows the location and physical outlines of all of the components..*; See: par [0059]-[0060]);

means for creating an initial array of nodes within the proposed physical layout (such as *…the analysis engine defines intermediate or target nodes which are virtual nodes assigned by the analysis engine in order to specify the location of the connection …*; See: Col. 8 par [0112]);

means for adjusting within said proposed physical layout said initial array of nodes (such as… *intermediate or target nodes which are virtual nodes assigned…such a virtual nodes or targets could be used to specify the location of a connection…a virtual node or target may be temporary and it may be movable during a routing analysis...*(See: [0112] lines 5-14)…*the routing engine offsets or jogs the segment path by relocating the start node to either side of the intended heading in order to branch around the obstacle…*; See: Col. 18 par [0171]),

means for creating a computer generated representation of a trace within said proposed physical layout of said routing space that connects the first electronic component to the second electronic component and passes between said pair of obstacles by selecting a path through said adjusted array of nodes, said trace comprising said path (such as*...creating a pattern of traces on a routing surface from input data from connections in accordance with the trace creating algorithm...*; See: Abstract).

Vaughn et al discloses means for adjusting (i.e. relocating). However, Vaughn et al fails expressly to disclose locating a particular number of nodes between a pair of said obstacles, said particular number corresponding to a maximum number of traces that can pass between said obstacles, each of said nodes positioned between said pair of said obstacles representing a possible location of one of said traces that can pass between said obstacles.

Kikuchi et al discloses locating a particular number of nodes between a pair of said obstacles, said particular number corresponding to a maximum number of traces that can pass between said obstacles, each of said nodes positioned between said pair of said obstacles representing a possible location of one of said traces that can pass between said obstacles (such as *...the routing zone width 52 is represented by Bq. The sum of the radii and the routing zone width 52 as a measure from the center of the one terminal to the other terminal is represented by Bz,...*; See: Col. 11 lines 33-45).

It would have been obvious to one of ordinary skill in the art to combine the teaching of Kikuchi et al with the teachings of Vaughn et al because both references concerned with routing of a circuit. The motivation to do so would be to reserve a sufficient space between the routes or wires so as to suppress occurrence of crosstalk therebetween (Kikuchi et al).

17. As per Claim 3, Vaughn et al discloses the apparatus system of claim 2, wherein said means for adjusting comprises, determining means for determining said particular number of paths traces that may pass between said pair of obstacles (such as *...the zone quanta concept enables both the analysis and the actual routing to take place in a*

defined zone quanta of limited area, wherein the number of routing path segments to be processed and the number of obstacles to routing the path segments are reduced...; See: Col. 16 par [00157] lines 8-13).

18. As per Claims 4 and 5, Canceled.

19. As per Claim 6, Vaughn et al discloses the apparatus system of claim 2, wherein said means for adjusting locates said particular number of nodes along a line segment between said pair of obstacles (such as *...the zone quanta concept enables both the analysis and the actual routing to take place in a defined zone quanta of limited area, wherein the number of routing path segments to be processed and the number of obstacles to routing the path segments are reduced...*; See: Col. 16 par [00157] lines 8-13).

20. As per Claim 7, Vaughn et al discloses the apparatus system of claim 6, wherein said line segment is a shortest line segment between said pair of obstacles (See: Col. 6 par [0104]).

21. As per Claim 8, Vaughn et al discloses the apparatus system of claim 2, wherein said means for adjusting adjusts a location of each of at least one of said nodes in accordance with a proximity of said node to an object in said routing space (such as*...intermediate or target nodes which are virtual nodes assigned...such a virtual nodes or targets could be used to specify the location of a connection...a virtual node or target may be temporary and it may be movable during a routing analysis...*; See: [0112] lines 5-14).

22. As per Claim 9, Vaughn et al discloses the apparatus system of claim 2 further comprising means for linking said adjusted initial array of nodes (See: Fig. 6).

23. As per Claim 10, Vaughn et al discloses the apparatus system of claim 9, wherein said means for linking creates a link between each node in said array and nodes within a predetermined proximity of said each node without crossing any of said links (See: Fig. 5 and Fig. 6).

24. As per Claim 11, Vaughn et al discloses the apparatus system of claim 10, wherein said path traverses ones of said links (See: [0163] lines 10-15).

25. As per Claims 12-17, Canceled.

26. As per Claim 18, Vaughn et al discloses an apparatus comprising computer hardware for use in generating paths for electrically conductive traces within a routing space comprising:

means for receiving information representing a proposed physical layout of a routing space of an electronics system including locations of obstacles within said proposed physical layout (such as... *input 102 represents the data entered by a user describing the circuit to be routed. This data... includes a placement diagram,...a placement diagram generally consists of a drawing that shows the location and physical outlines of all of the components..*; See: par [0059]-[0060]);

means for creating an initial array of nodes within said proposed physical layout of said routing space (such as ...*the analysis engine defines intermediate or target nodes which are virtual nodes assigned by the analysis engine in order to specify the location of the connection* ...; See: Col. 8 par [0112]);

means for creating a computer generated representation of a trace within said proposed physical layout of said routing space by selecting a path through said adjusted array of nodes said trace comprising said path (such as...*creating a pattern of traces on a routing surface from input data from connections in accordance with the trace creating algorithm*...; See: Abstract).

Vaughn et al fails expressly to disclose the limitation of, means for applying forces to ones of said nodes, wherein a magnitude of one of said forces applied to one of said nodes is proportional to proximity of said one of said nodes to one of said obstacles; means for moving within said proposed physical layout each of said ones of said nodes in accordance with said force applied to said one of said nodes.

Kikuchi et al discloses means for applying forces to ones of said nodes, wherein a magnitude of one of said forces applied to one of said nodes is proportional to proximity of said one of said nodes to one of said obstacles (such as...*the terminal constraint graph generator prepares the terminal constraint graph data with the component terminals includes as nodes. Calculation is made of the limit movable distance within which one node is movable towards the other node in a moving direction via the routing zone including the routes and the necessary gap interposed therebetween*...; See: Col. 5 lines 26-32; Fig. 8); means for moving within said proposed physical layout each of said ones of said nodes in accordance with said force applied to said one of said nodes (such as...*movable distance within which one node is movable towards the other node*....; See: Col. 5 lines 26-32; Fig. 8).

It would have been obvious to one of ordinary skill in the art to combine the teaching of Kikuchi et al with the teachings of Vaughn et al because both references concerned with routing of a circuit. The motivation to do so would be to reserve a sufficient space between the routes or wires so as to suppress occurrence of crosstalk therebetween (Kikuchi et al).

27. As per Claims 19, and 20, Canceled.

28. As per Claim 21, Kikuchi et al discloses the apparatus system of claim 18, wherein said means for applying a plurality of forces to one of said nodes, wherein a magnitude of each of said plurality of forces corresponds to a proximity of said node to one of said plurality of obstacles (such as...*the terminal constraint graph generator prepares the terminal constraint graph data with the component terminals includes as nodes. Calculation is made of the limit movable distance within which one node is movable towards the other node in a moving direction via the routing zone including the routes and the necessary gap interposed therebetween*...; See: Col. 5 lines 26-32; Fig. 8); and

said means for moving moves one of said nodes in accordance with a vector sum of said plurality of forces applied to said one of said nodes (such as...*movable distance within which one node is movable towards the other node*....; See: Col. 5 lines 26-32; Fig. 8).

29. As per Claims 22-43, Canceled.

30. As per Claim 44, Vaughn et al discloses the apparatus of claim 2, wherein said computer generated representation of said trace is stored within said system apparatus (such as *system database 106*).

31. As per Claims 45-47, canceled.

32. As per Claim 48, the instant claims recite substantially same limitation as the above rejected claim 44, and therefore rejected under the same rationale.

33. As per Claims 49-54, Canceled.

34. As per claim 55, Vaughn et al discloses the apparatus system of claim 2, wherein said means for creating an initial array of nodes creates the initial array of nodes in a honeycombed pattern (See: Fig. 10B #366).

35. As per Claim 56, Vaughn et al discloses the apparatus system of claim 2, wherein said means for creating an initial array of nodes creates the initial array of nodes wherein a random location of at least one node is generated (such as...a virtual node or target may be temporary and it may be movable during a routing analysis...; See: [0112] lines 5-14).

36. As per Claim 57, the instant claims recite substantially same limitation as the above rejected claim 55, and therefore rejected under the same rationale.

37. As per Claim 58, the instant claims recite substantially same limitation as the above rejected claim 56, and therefore rejected under the same rationale.

38. As per Claims 59-63, Canceled.

Conclusion

39. All claims are rejected.

Examiner Remarks

40. **Examiner's Note:** Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. **Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well.** It is respectfully requested from the applicant in preparing responses, to fully consider the references in their entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

Examiner Request

41. In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

MPEP states:

"...with respect to newly added or amended claims, applicant should show support in the original disclosure for the new or amended claims. See MPEP § 714.02 and § 2163.06."

Requests for Interview

42. In accordance with 37 CFR 1.133(a)(3), requests for interview must be made in advance. Interview requests are to be made by telephone (571-272-8571) or FAX (571-273-8571). Applicants must provide a detailed agenda as to what will be discussed (generic statement such as "discuss §102 rejection" or "discuss rejections of claims 1-3"

may be denied interview). The detail agenda along with any proposed amendments is to be written on a PTOL-413A or a custom form and should be faxed (or emailed, subject to MPEP 713.01.I / MPEP 502.03) to the Examiner at least 3 days prior to the scheduled interview. Interview requests submitted within amendments may be denied because the Examiner was not notified, in advance, of the Applicant Initiated Interview Request and due to time constraints may not be able to review the interview request to prior to the mailing of the next Office Action.

Communications

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KIBROM K. GEBRESILASSIE whose telephone number is (571)272-8571. The examiner can normally be reached on 8:00 am - 4:30 pm Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on 571-272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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